

CLAIMS

What is claimed is:

1. A liquid crystal device including a first substrate and a second substrate opposing each other and a liquid crystal enclosed in a gap between the first substrate and the second substrate, the liquid crystal device comprising:

a reflective film which is provided on the first substrate and contains silver;

a protective film provided on the reflective film;

a first transparent electrode provided on the protective film; and

an alignment film provided on the first transparent electrode.

2. The liquid crystal device according to claim 1, further comprising a first lead provided on the first substrate,

wherein the first lead has a metal film, and

the average diameter of the crystal grains in the metal film is larger than that of the crystal grains in the reflective film.

3. The liquid crystal device according to claim 2,  
wherein the average diameter of the crystal grains in the reflective  
film is in the range of 0.1 nm to 6.0 nm, and

the average diameter of the crystal grains in the metal film is in  
the range of 2.0 nm to 20 nm.

4. The liquid crystal device according to claim 2,  
wherein the metal film is provided on the reflective film.

5. The liquid crystal device according to claim 2,  
wherein the first lead further comprises a metal oxide film deposited  
on the metal film.

6. The liquid crystal device according to claim 2, further  
comprising:

a second transparent electrode provided on the second substrate; and

a driver IC for supplying output signals to the first lead,

wherein the first lead is connected to the second transparent  
electrode with a conductor.

7. The liquid crystal device according to claim 6,

wherein the metal film is formed at a portion other than the connection to the driver IC.

8. The liquid crystal device according to claim 2, further comprising:

a second lead provided on the first substrate; and

a driver IC for driving the liquid crystal,

wherein the second lead comprises a metal film, and an input signal is supplied to the driver IC through the second lead.

9. The liquid crystal device according to claim 8,

wherein the metal film is formed at a portion other than the connection to the driver IC.

10. The liquid crystal device according to claim 8,

further comprising an external circuit board for supplying the input signal to the driver IC,

wherein the external circuit board is connected to the second lead, and

the metal film is formed at a portion other than the connection to the external circuit board.

11. The liquid crystal device according to claim 1, further comprising:

a first lead connected to the first transparent electrode; and  
a driver IC connected to the first lead,  
wherein the first lead comprises a metal film.

12. The liquid crystal device according to claim 11,

wherein the metal film is formed at a portion other than the connection to the driver IC.

13. The liquid crystal device according to claim 11, further comprising:

a second lead provided on the first substrate,  
wherein the second lead comprises a metal film, and  
an input signal is supplied to the driver IC through the second lead.

14. The liquid crystal device according to claim 13, further comprising:

an external circuit board supplying an input signal to the second lead,

wherein the metal film of the second lead is formed at a portion other than the connection to the external circuit board.

15. An electronic apparatus comprising a liquid crystal device according to claim 1.

16. A liquid crystal device including a first substrate and a second substrate opposing each other and a liquid crystal enclosed in a gap between the first substrate and the second substrate; the liquid crystal device comprising:

a reflective film which is provided on the first substrate and contains silver; and

a protective film provided on the reflective film,

wherein the reflectance of the protective film for light at a shorter wavelength end of visible light is higher than that for light at a longer wavelength end.

17. The liquid crystal device according to claim 16, wherein the protective film contains titanium oxide.

18. The liquid crystal device according to claim 17, wherein the protective film has a refractive index of 1.8 or more.

19. A liquid crystal device including a first substrate and a second substrate opposing each other and a liquid crystal enclosed in a gap between the first substrate and the second substrate; the liquid crystal device comprising:

a reflective film which is provided on the first substrate and contains silver;

first transparent electrodes provided on the reflective film; and

second transparent electrodes provided on the second substrate;

wherein dots are formed corresponding to crossings of the first transparent electrodes and the second transparent electrodes, a plurality of the dots defining one pixel,

different color layers are assigned to the dots defining said one pixel, the color layers containing a blue color layer and a red color layer, and

the distance from a white coordinate point to a coordinate point of the light which passes through the blue color layer is larger than the distance from the white coordinate point to the coordinate point of the light which passes through the red color layer in an xy chromaticity diagram.

20. A liquid crystal device including a first substrate and a second substrate opposing each other and a liquid crystal enclosed in a gap between the first substrate and the second substrate; the liquid crystal device comprising:

a reflective film which is provided on the first substrate and contains metal;

a first transparent electrode deposited on the reflective film; and

a lead provided on the first substrate,

wherein the lead comprises a metal film, and

the average diameter of the crystal grains in the metal film is larger than that of the crystal grains in the reflective film.

21. The liquid crystal device according to claim 20, further comprising:

a first extending region which is provided at one side of the first substrate and which does not overlap the second substrate; and

a second extending region which is provided at a side crossing said one side of the first substrate and which does not overlap the second substrate,

wherein the lead is provided over the first extending region and the second extending region.

22. A method for making a liquid crystal device including a first substrate and a second substrate opposing each other and a liquid crystal enclosed in a gap between the first substrate and the second substrate, the method comprising the steps of:

providing a reflective film containing silver on the first substrate;  
providing a protective film on the reflective film;  
providing a first transparent electrode on the protective film; and  
providing an alignment film on the first transparent electrode.

23. The method for making a liquid crystal device according to claim 22, further comprising the step of:

providing a first lead having a metal film on the first substrate,  
wherein the average diameter of the crystal grains in the metal film  
is larger than that of the crystal grains in the reflective film.



24. A method for making a liquid crystal device including a first substrate and a second substrate opposing each other and a liquid crystal enclosed in a gap between the first substrate and the second substrate, the method comprising the steps of:

providing a reflective film containing silver on the first substrate;  
and

providing a protective film on the reflective film;

wherein the reflectance for light at a shorter wavelength end in visible light of the protective film is higher than that for light at a longer wavelength end.

25. The method for making a liquid crystal device according to claim 24, wherein the protective film contains titanium oxide.

26. The method for making a liquid crystal device according to claim 25, wherein the protective film has a refractive index of 1.8 or more.